

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): WON, Eun-Tae et al. **GROUP ART UNIT:** 3661
APPLICATION NO.: 10/797,555 **EXAMINER:** BEHNCKE, Christine M.
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**FOR: SYSTEM AND METHOD FOR COMMUNICATING VEHICLE
MANAGEMENT INFORMATION BETWEEN AN AD-HOC
NETWORK**

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SUBMISSION UNDER 37 C.F.R. §1.114

Sir:

In response to the Office Action of the United States Patent and Trademark Office dated November 20, 2007, and in connection with the Request for Continued Examination filed herewith, please consider the following amendments and remarks.

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for forming an ad-hoc network between vehicles to communicate vehicle management information between them, comprising the steps of:

collecting, by a source vehicle, its own vehicle driving information, and creating vehicle management information of the source vehicle based on the vehicle driving information;

setting up, by the source vehicle, a routing condition and a message reception condition composed of predetermined vehicle traveling requirements based on the vehicle management information, and transmitting a vehicle management information message having the routing condition, the message reception condition and the vehicle management information to nearby vehicles;

searching, by the nearby vehicles, for the routing condition and the message reception condition upon receiving the vehicle management information message;

determining, by the nearby vehicles, whether the nearby vehicles route the vehicle management information message to another nearby vehicle ~~when according to whether~~ the vehicle driving information of the nearby vehicles satisfies the routing condition; and

determining, by the nearby vehicles, whether the nearby vehicles ~~store~~ provide the vehicle ~~driving-management~~ driving-management information to a driver after detecting the vehicle ~~driving-management~~ driving-management information included in the vehicle management information message ~~when according to whether~~ the vehicle driving information of the nearby vehicles satisfies the ~~routing-message reception~~ routing-message reception condition.

2. (Original) The method as set forth in claim 1, wherein the routing condition is contained in a header of the vehicle management information message, and the vehicle management information of the source vehicle is contained in a main body of the vehicle management information message.

3. (Currently Amended) The method as set forth in claim 2,

wherein the step for searching the routing condition includes the steps of:

searching, by the nearby vehicles, for the routing condition upon receiving header information of the vehicle management information message; and

comparing, with the nearby vehicles, ~~their~~the vehicle driving information of the nearby vehicles with the vehicle traveling requirements contained in the routing condition.

4. (Original) The method as set forth in claim 3, wherein, in the collecting step, the step of creating vehicle management information includes the steps of

creating, with the source vehicle, vehicle safety information based on its own vehicle driving information and the vehicle driving information of the nearby vehicles, and including at least one of position and direction of the source vehicle in the vehicle driving information; and

creating the vehicle management information using at least one of the vehicle driving information and the vehicle safety information of the source vehicle.

5. (Original) The method as set forth in claim 4, wherein the vehicle safety information includes a first warning message indicating an imminent traffic collision between vehicles, a second warning message indicating a traffic accident occurrence, and a third warning message indicating the entrance of the source vehicle to a crossroads.

6. (Previously Presented) The method as set forth in claim 3, wherein the source vehicle sets up the message reception condition to allow only vehicles satisfying a prescribed vehicle traveling requirement from among the predetermined vehicle traveling requirements to receive the vehicle management information message, includes the message reception condition in the routing condition, and then transmits the message.

7. (Original) The method as set forth in claim 6, wherein the vehicle traveling requirement includes at least one of vehicle position, speed, and direction information.

8. (Currently Amended) The method as set forth in claim 6,

wherein the vehicle management information message is transmitted to ~~a~~the driver if the nearby vehicles are compatible with the message reception condition.

9. (Original) The method as set forth in claim 7,
wherein the routing condition further includes ID (Identification) and routing area information of a routing vehicle, and the message reception condition further includes ID information of a destination vehicle.

10. (Original) The method as set forth in claim 9,
wherein the source vehicle sets each of the routing vehicle ID and the destination vehicle ID to a null value, and broadcasts the vehicle management information message to the nearby vehicles.

11. (Original) The method as set forth in claim 10,
wherein the source vehicle sets the routing area to a predetermined area, sets vehicle position information contained in the vehicle traveling requirement of the message reception condition to a reference position of the routing area, and broadcasts the vehicle management information message to nearby vehicles contained in the predetermined area.

12. (Original) The method as set forth in claim 9,
wherein the source vehicle sets the destination vehicle ID to a specified vehicle, sets the routing vehicle ID to an ID of the specified vehicle based on the vehicle driving information of the specified vehicle, and transmits the vehicle management information message to the specified vehicle.

13. (Original) The method as set forth in claim 12,
wherein the source vehicle sets up a plurality of routing vehicle IDs, and transmits the vehicle management information message to the specified vehicle using a flooding method.

14. (Currently Amended) An apparatus for forming an ad-hoc network between a source vehicle and nearby vehicles to communicate vehicle management information between them, the apparatus comprising:

a sensor for collecting vehicle driving information including at least one of vehicle position, direction, and speed information of the source vehicle;

a communicator for receiving a vehicle management information message having vehicle management information of nearby vehicles, a routing condition and a message reception condition of nearby vehicles from the nearby vehicles, ~~for inserting a predetermined vehicle traveling requirement into the routing condition and the message reception condition, and~~ for comparing the vehicle traveling requirement included in the routing condition with the collected vehicle driving information, ~~and for determining whether the vehicle management information message is routed to another vehicle when the vehicle driving information of the nearby vehicles satisfies the routing condition according to the compared result, and determining whether the vehicle management information is transmitted to a controller according to whether the collected vehicle driving information is compatible with the message reception condition;~~

a display for informing a driver of the collected vehicle driving information and the vehicle management information; and

a controller for ~~determining whether the nearby vehicles store the vehicle driving information after detecting vehicle driving information included in the vehicle management information message when the vehicle driving information satisfies the routing condition~~ receiving the vehicle management information and for transmitting the vehicle management information to the display.

15. (Original) The apparatus as set forth in claim 14, wherein the routing condition is contained in a header of the vehicle management information message, and the vehicle management information is contained in a main body of the vehicle management information message.

16. (Original) The apparatus as set forth in claim 14, wherein the vehicle traveling requirement includes at least one of vehicle position, speed, and direction information.

17. (Cancelled)

18. (Currently Amended) The apparatus as set forth in claim 14, wherein:

the controller receives the vehicle management information ~~message~~ from the communicator if the communicator determines that the collected vehicle driving information is compatible with the vehicle traveling requirements defined in the message reception condition.

19. (Currently Amended) An apparatus for forming an ad-hoc network between a source vehicle and nearby vehicles to communicate vehicle management information between them, the apparatus comprising:

a sensor for collecting vehicle driving information including at least one of vehicle position, direction, and speed information of the source vehicle;

a communicator for receiving vehicle driving information of nearby vehicles;

a controller for creating vehicle management information based on individual vehicle driving information of the source vehicle and the nearby vehicles, ~~for~~ setting up a predetermined routing condition ~~and a message reception condition~~ for routing the vehicle management information, ~~for~~ inserting a predetermined vehicle traveling requirement into the routing condition, ~~and the message reception condition~~, ~~and for~~ creating a vehicle management information message having the routing condition, the message reception condition and the vehicle management information, and transmitting the vehicle management information message; and

a display for informing a driver of the vehicle driving information of the source vehicle and the vehicle management information,

wherein the controller further determines ~~whether the nearby vehicles store the vehicle driving information after detecting vehicle driving information included in the vehicle management information message when the vehicle driving information satisfies the routing condition~~ whether the vehicle management information included in the vehicle management information message received from the nearby vehicles is provided to the driver according to whether the collected vehicle driving information is compatible with the message reception condition included in the vehicle management information message receiving from the nearby vehicles.

20. (Original) The apparatus as set forth in claim 19, wherein the routing condition is contained in a header of the vehicle management information message, and the vehicle management information of the source vehicle is contained in a main body of the vehicle management information message.

21. (Original) The apparatus as set forth in claim 19, wherein the controller creates vehicle safety information upon receiving the vehicle driving information of the source vehicle and the nearby vehicles, and creates the vehicle management information using at least one of the vehicle driving information and the vehicle safety information of the source vehicle.

22. (Original) The apparatus as set forth in claim 21, wherein the vehicle safety information includes a first warning message indicating an imminent traffic collision between vehicles, a second warning message indicating a traffic accident occurrence, and a third warning message indicating the entrance of the source vehicle to a crossroads.

23. (Previously Presented) The apparatus as set forth in claim 20, wherein the source vehicle sets up the message reception condition to allow only vehicles satisfying the predetermined vehicle traveling requirement to receive the vehicle management information message, includes the message reception condition in the routing condition, and then transmits the message.

24. (Original) The apparatus as set forth in claim 23, wherein the vehicle traveling requirement includes at least one of vehicle position, speed, and direction information.

25. (Original) The apparatus as set forth in claim 24,

wherein the routing condition further includes ID (Identification) and routing area information of a routing vehicle, and the message reception condition further includes ID information of a destination vehicle.

26. (Original) The apparatus as set forth in claim 25, wherein the source vehicle sets each of the routing vehicle ID and the destination vehicle ID to a null value, and broadcasts the vehicle management information message to the nearby vehicles.

27. (Original) The apparatus as set forth in claim 26, wherein the source vehicle sets the routing area to a predetermined area, sets vehicle position information contained in the vehicle traveling requirement of the message reception condition to a reference point of the routing area, and broadcasts the vehicle management information message to nearby vehicles contained in the predetermined area.

28. (Original) The apparatus as set forth in claim 25, wherein the source vehicle sets the destination vehicle ID to a specified vehicle, sets the routing vehicle ID to an ID of the specified vehicle to based on the vehicle driving information of the specified vehicle, and transmits the vehicle management information message to the specified vehicle.

29. (Original) The apparatus as set forth in claim 25, wherein the source vehicle sets the destination vehicle ID to a specified vehicle, sets up a plurality of routing vehicle IDs, and transmits the vehicle management information message to the specified vehicle using a flooding method.

30. (Currently Amended) A method for forming an ad-hoc network between a source vehicle and nearby vehicles to communicate vehicle management information between them comprising the steps of:

collecting vehicle driving information including at least one of vehicle position, direction, and speed information of the source vehicle;

receiving a vehicle management information message having vehicle management information of the nearby vehicles, a message reception condition and a routing condition ~~of nearby vehicles~~ including a predetermined vehicle traveling requirement from the nearby vehicles, ~~inserting a predetermined vehicle traveling requirement into the routing condition and the message reception condition~~; comparing the vehicle traveling requirement with the collected vehicle driving information, and determining whether the vehicle management information message is routed to another vehicle ~~when~~ according to whether the vehicle driving information ~~of the nearby vehicles~~ satisfies the routing condition; and

informing a driver of the vehicle driving information of the source vehicle.

31. (Original) The method as set forth in claim 30, wherein the routing condition is contained in a header of the vehicle management information message, and the vehicle management information is contained in a main body of the vehicle management information message.

32. (Original) The method as set forth in claim 30, wherein the vehicle traveling requirement includes at least one of vehicle position, speed, and direction information.

33. (Cancelled)

34. (Previously Presented) The method as set forth in claim 30, wherein the vehicle management information message is transmitted to a driver if the source vehicle determines that the vehicle driving information is compatible with the vehicle traveling requirement defined in the message reception condition.

35. (Currently Amended) A method for forming an ad-hoc network between a source vehicle and nearby vehicles to communicate vehicle management information between them comprising the steps of:

collecting vehicle driving information including at least one of vehicle position, direction, and speed information of the source vehicle;

receiving vehicle driving information of nearby vehicles from the nearby vehicles;

creating vehicle management information based on the vehicle driving information of the source vehicle and the nearby vehicles, setting up a routing condition and a message reception condition for routing the vehicle management information, inserting a predetermined vehicle traveling requirement into the routing condition and the message reception condition, and creating a vehicle management information message having the routing condition, the message reception condition and the vehicle management information; ~~and~~

transmitting the vehicle management information message; and

informing a driver of the vehicle driving information and the vehicle management information of the source vehicle.

36. (Original) The method as set forth in claim 35,

wherein the routing condition is contained in a header of the vehicle management information message, and the vehicle management information of the source vehicle is contained in a main body of the vehicle management information message.

37. (Original) The method as set forth in claim 35,

wherein the source vehicle creates vehicle safety information based on its own vehicle driving information and vehicle driving information of the nearby vehicles, and the vehicle management information is created using at least one of the vehicle driving information and the vehicle safety information of the source vehicle.

38. (Original) The method as set forth in claim 37,

wherein the vehicle safety information includes

a first warning message indicating an imminent traffic collision between vehicles,

a second warning message indicating a traffic accident occurrence, and

a third warning message indicating the entrance of the source vehicle to a crossroads.

39. (Previously Presented) The method as set forth in claim 36,
wherein the source vehicle sets up the message reception condition to allow only vehicles satisfying the predetermined vehicle traveling requirement to receive the vehicle management information message, includes the message reception condition in the routing condition, and then transmits the message.

40. (Original) The method as set forth in claim 39,
wherein the vehicle traveling requirement includes at least one of vehicle position, speed, and direction information.

41. (Original) The method as set forth in claim 40,
wherein the routing condition further includes ID (Identification) and routing area information of a routing vehicle, and the message reception condition further includes ID information of a destination vehicle.

42. (Original) The method as set forth in claim 41,
wherein the source vehicle sets each of the routing vehicle ID and the destination vehicle ID to a null value, and broadcasts the vehicle management information message to the nearby vehicles.

43. (Original) The method as set forth in claim 42,
wherein the source vehicle sets the routing area to a predetermined area, sets vehicle position information contained in the vehicle traveling requirement of the message reception condition to a reference point of the routing area, and broadcasts the vehicle management information message to nearby vehicles contained in the predetermined area.

44. (Original) The method as set forth in claim 41,
wherein the source vehicle sets the destination vehicle ID to a specified vehicle, sets the routing vehicle ID to an ID of the specified vehicle to based on the vehicle driving information of

the specified vehicle, and transmits the vehicle management information message to the specified vehicle.

45. (Original) The method as set forth in claim 41, wherein the source vehicle sets the destination vehicle ID to the specified vehicle, sets up a plurality of routing vehicle IDs, and transmits the vehicle management information message to the specified vehicle using a flooding method.

46. (Original) The method as set forth in one of claims 4, 30 and 35, wherein the vehicle driving information includes information indicating a traffic accident occurrence of the source vehicle.

47. (Original) The apparatus as set forth in one of claims 14 and 19, wherein the vehicle driving information includes information indicating a traffic accident occurrence of the source vehicle.

REMARKS

Reconsideration of the present application is respectfully requested.

Claims 1-16, 18-32 and 34-47 are pending in the application, of which Claims 1, 14, 19, 30 and 35 are written in independent form.

The Examiner rejected Claims 1-16, 18-29 and 46-47 under 35 U.S.C. § 112, first paragraph, for a lack of written description requirement. The Examiner rejected Claims 1, 9, 12, 14, 16-19, 25, 28, 30, 32, 35, 41 and 44 under 35 U.S.C. § 102(e) as being anticipated by U.S. Publication No. 2004/0192331 to *Gorday et al.* (hereinafter *Gorday*). The Examiner rejected Claims 2-3, 6-8, 15, 20, 23-24, 31, 33-34, 36 and 39-40 under 35 U.S.C. § 103(a) as being unpatentable over *Gorday* in view of U.S. Patent No. 6,708,107 to *Impson et al.* (hereinafter *Impson*).

Please amend Claims 1, 3, 8, 14, 18, 19, 30 and 35 as set forth herein. No new matter has been added.

Regarding the § 112, first paragraph rejection, the Examiner alleged that the “determining whether the nearby vehicles store” clause added to the independent claims in the amendment dated August 21, 2007 is not disclosed or described in the specification. In response, Applicants have amended the independent claims to delete the “store” language, and to better conform the rejected claims to the specification. It is respectfully asserted that this rejection has been overcome. Accordingly, withdrawal of the same is respectfully requested.

Regarding the §102(e) rejection, Applicants respectfully traverse, and assert that *Gorday* is insufficient in anticipating the rejected claims. *Gorday* discloses a method of targeting a message to a communication device selected from among a set of communication devices. In the embodiment of FIGs. 4 and 5, the devices are vehicles that participate in a network.

Claim 1 recites, *inter alia*, collecting, by a source vehicle, its own vehicle driving information, and creating vehicle management information of the source vehicle based on the vehicle driving information. As previously argued, a source vehicle in *Gorday* (e.g., 440) collects information such as braking, speed and acceleration. However, *Gorday* does not create vehicle management information of the source vehicle based on the vehicle driving information (i.e., the braking, speed or acceleration). Instead, vehicle management information in *Gorday*, which the Examiner may be considering as the directional and range information, is based on relative locations and directions of other vehicles as compared to the source vehicle.

Further recited is setting up, by the source vehicle, a routing condition and a message reception condition composed of predetermined vehicle traveling requirements based on the vehicle management information, and transmitting a vehicle management information message having the routing condition, the message reception condition and the vehicle management information to nearby vehicles. As previously argued, it is respectfully asserted that *Gorday* does not set up a routing condition based on the vehicle management information, i.e., the directional and range information. In the paragraphs [0015] – [0016] cited by the Examiner, *Gorday* merely determines whether a vehicular status such as braking or acceleration, may affect a vehicle having a condition-satisfying location. If so, it sends the vehicle a message containing the vehicular status (see [0016]). Accordingly, in *Gorday* there is no routing condition composed of predetermined traveling requirements, being set up based on the vehicle management information.

Likewise, the aforesaid message in *Gorday*, which may be considered a vehicle management information message, only contains the vehicular status, such as braking or acceleration. It does not, however, include the routing condition and message reception condition composed of predetermined traveling requirements, as well as the vehicle management information, as recited in Claim 1. Respectfully, there is no such vehicle management information message taught in *Gorday*.

Accordingly, Applicants respectfully submit that the “searching” and “determining” recitations in Claim 1 are not met by *Gorday*, because they recite and rely on the vehicle management information message, of which *Gorday* appears to be devoid.

To further explain the distinctions between the rejected claims and the cited art, *Gorday* obtains information on range and/or direction by analyzing communication signals exchanged with the nearby vehicle or obtains information on range and/or direction by comparing location information of each vehicle. Then, the source vehicle obtains the information on the nearby vehicle affected by its current vehicular status and selects the nearby vehicle, and transmits a message including the current vehicular status of the source vehicle to the selected nearby vehicle.

In other words, *Gorday* discloses that the source vehicle selects the nearby vehicle that will receive the message including its vehicular status and transmits the message including the vehicular status to only the corresponding nearby vehicle. However, *Gorday* does not teach a configuration corresponding to a routing condition and a message reception condition in the rejected Claim 1.

It is respectfully asserted that the foregoing arguments also apply to each of Claims 14, 19, 30 and 35, which include similar recitations to those at issue in Claim 1. Respectfully, *Gorday* fails to teach a configuration corresponding to the routing condition and the message reception condition recited in Claim 19. *Gorday* does not disclose the configuration that the nearby vehicle determines whether the nearby vehicle provides the vehicle management information included into the vehicle management information message according to whether the vehicle driving information of the nearby vehicle satisfies the message reception condition.

As to Claim 30, *Gorday* does not disclose the configuration corresponding to the routing condition and the message reception condition in the present invention. In particular, *Gorday* does not disclose the configuration that the source vehicle determines whether to route the vehicle management information message to another nearby vehicle according to whether the vehicle driving information of the source vehicle satisfies the routing condition included in the received vehicle management information message.

As to Claim 35, *Gorday* does not disclose the configuration of transmitting the vehicle management information message including the routing condition and the message reception condition, and the configuration corresponding to the routing condition which the predetermined vehicle traveling requirement is inserted into and the message reception condition.

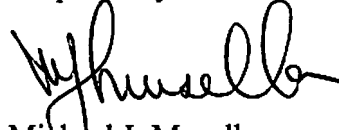
For at least these reasons, it is respectfully submitted that the §102(e) rejection of Claims 1, 9, 12, 14, 16-19, 25, 28, 30, 32, 35, 41 and 44 is incorrect, and should be withdrawn. Withdrawal of the same is respectfully requested.

Regarding the §103(a) rejection, it is respectfully submitted that this rejection should be withdrawn at least in view of the arguments as to the §102(e) rejection, and further, since *Impson* fails to cure the stated deficiencies in *Gorday*. Accordingly, withdrawal of this rejection is respectfully requested.

Independent Claims 1, 14, 19, 30 and 35 are believed to be in condition for allowance. Without conceding the patentability per se of dependent Claims 2-13, 15-16, 18, 20-29, 31-32, 34 and 36-47, these are likewise believed to be allowable by virtue of their dependence on their respective amended independent claims. Accordingly, reconsideration and withdrawal of the rejections of dependent Claims 2-13, 15-16, 18, 20-29, 31-32, 34 and 36-47 is respectfully requested.

Accordingly, all of the claims pending in the Application, namely, Claims 1-16, 18-32 and 34-47, are believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Musella", written in a cursive style.

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